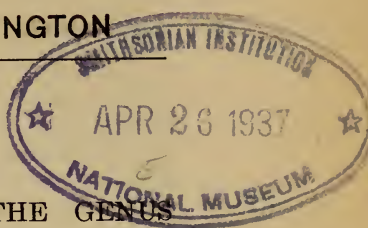


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STUDIES IN AMERICAN SPIDERS: THE GENUS
AIGOLA CHAMBERLIN.

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There has been great uncertainty as to the genera in which many of the American species of Linyphiidae should be placed. As a first attempt in this direction we here bring together the species congeneric with *Microneta crassimana* Emerton. All of these species are very rare and the females are either unknown or there is considerable uncertainty as to how they should be matched with the males.

AIGOLA Chamberlin.

N. Y. Ent. Soc. Jour. 29 : 36, 1921.

Type.—*Aigola paulina* Chamberlin which equals *Microneta crassimana* Emerton.

The species here placed in *Aigola* are all rather closely related to each other. They form a compact group in that great complex of species comprised in the old genera *Lepthyphantes* and *Microneta*. It is very difficult, if not impossible, to differentiate this genus on general characters, such as form of thorax, number and position of teeth or spines, or eye arrangement, but a good character is to be found in the genital bulb. In this group of species the radix is broader than usual, roughly triangular, the apex produced so far forward that it forms a notch in which the embolus lies. The embolus is not of the long, thin, folded and strongly curved type of *Lepthyphantes* and *Microneta* (in the wide sense), but is much more simple, smaller, and built on a different plan as described under the various species.

Aigola crassimana Emerton.

Figs. 1-2.

Microneta crassimana Emerton, Conn. Acad. Sci. Trans. 6 : 75, pl. 24, f. 3. 1882.

Gonyglidium tuberosum Emerton, Conn. Acad. Sci. Trans. 20 : 150, pl. 2, f. 5. 1915.

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Aigola pauliana Chamberlin, N. Y. Ent. Soc. Jour. 29 : 37, pl. 3, f. 3-4. 1921.

Aigola tuberella Chamberlin, N. Y. Ent. Soc. Jour. 29 : 37, pl. 3, f. 5-6. 1921.

The types of *crassimana*, *tuberosum*, *pauliana* and the so-called type of *tuberella* were compared May 24, 1935, and reexamined Nov. 17, 1936. The female paratypes of *tuberella* as left in the Museum of Comparative Zoology by Chamberlin consist of six specimens. Of these, three specimens are like the one figured by Emerton, one is a *Bathyphantes*, and there are two others. The one that I consider as probably being the female of *crassimana* is described below.

Male.—Length, 3.6 mm. Cephalothorax reddish orange yellow, the radiating lines orange, viewed from above, a little broad, rounded on the sides to the first coxa and then very slightly concave, broadly rounded across the front. Sternum golden yellow, a dark band around the edge, wider posteriorly. Labium clear orange. Chelicerae reddish orange, slightly divaricate at tip. Legs and palpi reddish orange. Abdomen gray above and below.

Posterior eyes in a very slightly recurved line, equidistant, separated by the diameter. Anterior eyes in a straight line, the median smaller than the lateral, separated by the radius and from the lateral by the diameter.

Femur of palpus distinctly thicker distally, curved inward at base. Patella rather long, convex above, less strongly concave below, one of the dorsal hairs a little larger than the others and sinuous. Tibia viewed from the side moderately swollen below, depressed at base above and then moderately convex; viewed from above, a little constricted at base, the mesal side gently convex, the lateral side swollen, abruptly narrowed at tip, the dorsal margin narrow, smooth; tibia clothed with many long hairs, none of which are much larger than the others. Cymbium rounded on the back, a low blackish rounded ridge on upper margin of cavity for the insertion of base of paracymbium; on the ventral side between the bulb and the tibia are two thin longitudinal teeth or plates with a narrow opening between them; the mesal one is the modified mesal angle of the cymbium and the other seems to be attached to a prolongation of the cymbium beyond it; both teeth fit into small notches in the lower distal margin of the tibia. Paracymbium has a flat area on the basal part under the edge of which is a row of five long stiff hairs; paracymbium curved to form a notch which when viewed from behind appears oblique with divergent sides; the posterior part has a heavy black ridge; the posterior margin bears a blunt projection, the edge of which is finely serrate; beyond this point the paracymbium is rather narrow to the bend; beyond the bend it bears a large triangular tooth on the outer margin and two teeth at the end, the upper one large and rounded, the terminal one smaller and pointed; from certain angles it looks like the tail of a whale. The median apophysis has a very stout, black, curved tooth. Radix enormously developed, broad, curved in a semicircle and covering a large part of the bulb; much narrowed

before the tooth; the distal angle broadly triangular, tip rounded. Embolus small and delicate, slightly enlarged where attached to the radix, then very narrow till it suddenly becomes greatly expanded, folded back into the bulb and hollowed out to form a large deep cavity, the mesal margin of which is armed with a small black tooth; the duct opens through a small black tubercle on the opposite side of the cavity at the base of an oval rounded lobe; mesally from it is a slender acute process. Terminal apophysis very broad, semicircular, the lateral margin convex, thickened, smooth; the side next to the embolus nearly straight, thin, frayed.

Female.—Length, 3.5 mm. Similar to the male in form and color. The visible part of the epigynum transverse with the ends rounded. The receptacles are evident as rather large, black, somewhat angulate spots separated by the diameter. The scape seems to be folded back as in many *Micronetas* but the tip is not evident from below. The oblique clefts on the base of the scape are clearly evident. I am not absolutely sure that this female is correctly matched.

Type locality: Hermit Lake, Mt. Washington, N. H.

New Hampshire: Hermit Lake, Mt. Washington, June 4, 1877, 2 ♂ and 2 ♀ of different species.

New York: Summit of Mt. MacIntyre, July 1, 1923, 1 ♂; Summit of Mt. Whiteface, Oct. 23, 1936, 1 ♂ (Dietrich).

Labrador: Battle Harbor, July 30, 1912, 1 ♂, 1 ♀ (C. W. Leng). (These are the types of *Gongylidium tuberosum* Emerton); Makkovik, June, 1928, 1 ♂ (Austin).

Alaska: Iditarod, Feb. 18, 1918, 1 ♂; St. Pauls Id., 1910, 1 ♂ (type of *Aigola pauliana* Chamberlin).

Aigola filicata, new species.

Figs. 3-4.

Male.—Length, 2.4 mm. Cephalothorax orange yellow, thorax slightly darkened by minute reticulations; viewed from above evenly rounded on the sides to the first coxae, very slightly constricted at the cervical groove, broadly rounded across the front, the eyes in profile. Sternum and labium yellow, slightly and narrowly grayish at the margin. Endites and chelicerae orange yellow. Legs and palpi yellow tinged with orange. Abdomen gray over white above on front two thirds, white on the sides and above the spinnerets, venter broadly gray in the middle.

Posterior eyes in a gently recurved line, the median a little smaller than the lateral, separated by the diameter and a little farther from the lateral. Anterior eyes in a straight line, the median smaller than the lateral, separated by less than the radius and from the lateral by the diameter.

Femur of palpus curved inward and distinctly thicker distally. Patella short, the dorsal hair not much longer than the others. Tibia viewed from above broadest in the middle, the distal margin thin and broadly rounded. Cymbium smoothly rounded over the back without projections at the base. Paracymbium approaches most nearly that of *crassimana*, but the basal part is not so deeply concave, the posterior projection is not so thick or

heavy, the ridge on the inner surface of the horizontal arm follows a more sinuate course, the tooth on the outer edge before the expanded terminal part is much smaller, the end does not look so much like a whale's tail, the notch is very shallow, the outer angle only slightly expanded and is broadly rounded; the inner angle is extended even farther than in *crassimana*; the horizontal part is long and narrow and the terminal part is folded sharply back over it. The median apophysis is black and strongly chitinized, the tooth short and stout, the opposite angle upturned to form a short process armed with minute claw-like teeth. Radix V-shaped with a deep notch in which lies the embolus and with a sharp tooth on the mesal side; the distal angle ends in a thin, double, blackish point. Lying across the base of the embolus is a small process which ends in two unequal black teeth on the mesal end; the duct opens on a rather large hyaline bluntly pointed process; between this process and the tip of the cymbium is a long, slender, pointed tooth, which is really a branch of the embolus.

Holotype male, trail from railroad to Denver Glacier, three miles from Skagway, Alaska, June 25, 1936.

Aigola flava Emerton.

Figs. 5-6.

Microneta flava Emerton, Conn. Acad. Sci. Trans. 20 : 152, pl. 3, f. 2. 1915.

Male.—Length, 2 mm. General color of whole spider pale orange yellow. Cephalothorax more orange, triangular spot on back of head yellow; viewed from above, rather broad, rounded on the sides to the front of front coxa and then narrowed in a straight line, broadly rounded in front. Sternum, labium and endites all light. Chelicerae slightly divaricate at tip. Abdomen yellow lightly suffused with gray.

The palpus is much like that of *flavescens*; femur, patella and tibia are almost exactly the same; the dorsal distal margin of the tibia is oblique, the lateral angle broadly and shallowly excavated from the lateral side. Cymbium smoothly rounded over the back. Paracymbium much like *flavescens* but the posterior projection is longer, the ridge on the posterior side of the middle part is shorter and rounded above, the outer arm is broader, the ridge is much higher and forms a double tooth; it is well shown in Emerton's figure. The tooth of the median apophysis is a little more slender. The radix is of the same general form but the proximal expansion is shorter and more broadly rounded. The armature of the distal end of the radix is entirely different; on the lateral side are two thin ribbon-like processes, the basal one acute, the other longer, curved, aciculate. The embolus depressed in the middle with a ridge on each side, the dorsal one broadly rounded, the ventral one acute, bearing the duct.

Female.—Similar to the male in form, color and size. Epigynum rather protuberant, the posterior margin broadly rounded with a slight indentation in the middle where the tip of the scape appears.

Type locality: Lake Louise, Alberta, Aug. 10, 1905, 1 ♂, 1 ♀.

Redescribed from the types.

Aigola flavescens, new species.

Figs. 7-8.

Male.—Length, 1.6 mm. Cephalothorax dull yellowish, lightly suffused with gray, the radiating lines and the triangular area on the back of the head darker, margin broadly gray, viewed from above, rounded on the sides, but narrowed behind and abruptly narrowed in front from the front coxa. Sternum dark gray over orange yellow. Labium dark. Endite light orange yellow, gray on the sides. Legs and palpi straw yellow. Abdomen dark gray.

Posterior eyes in a straight line, the median separated by the radius and from the lateral by half the radius. Anterior eyes in a straight line, the median smaller than the lateral, almost touching and only a little farther from the lateral.

Femur of palpus rather short, strongly compressed, curved inward at base. Patella very short below, moderately convex above. Tibia short, a little swollen below, gently convex above, the dorsal distal margin broadly rounded. Cymbium rounded on the back without a protuberance. Paracymbium very large and extending out at right angles to the palpus, rather narrowly attached to the cymbium, it is first directed obliquely backward and provided with a rounded notch to fit around the end of the tibia; the middle part of the paracymbium is narrow, directed laterally, and provided on the posterior side with a sharp ridge which ends in a sharp angle next to the tibia, the outer arm is short, incurved and armed on the outer side at the bend with an erect triangular tooth. The tooth of the median apophysis is short and black; the opposite angle is upturned to form a blunt black tooth. The radix is triangular in form with a broad notch into which the embolus fits, the basal arm is rather broad, pointed and not constricted; posteriorly the radix is expanded into a long, round-pointed plate; the distal angle has a sharp ridge on the ventral side, followed by a deep notch beyond which there is a triangular enlargement. The terminal apophysis is short and armed with three short teeth, the mesal one blunt, the other two acute; behind them is a much longer, slender black process. The embolus is broadly triangular with the duct opening through a minute tubercle at the tip.

Holotype male; allotype female, Wawbeek, N. Y., Oct. 23, 1934; two paratypes with same data.

New York: Moores, Sept. 26, 1936, 2 ♂, sifted from moss in bog; Jordanville, Nov. 21, 1936, 1 ♂, from moss in swamp.

Aigola rectangulata Emerton.

Fig. 9.

Microneta rectangulata Emerton, Conn. Acad. Sci. Trans. 18 : 217, pl. 2, f. 5. 1913.

Male.—Length, 2-2.2 mm. Cephalothorax orange yellow, the margin narrowly blackish, the radiating lines, the triangular area on the back of the head and lines running to the posterior eyes, gray; viewed from above rather broad, evenly convex on the sides to the first coxa and then gently

concave, broadly rounded across the front. Sternum and labium almost black over yellowish. Endites dark gray over orange. Chelicerae swollen in front, constricted towards the tip, strongly excavated on the inside, attenuate and divaricate at tip, an oblique row of three stiff hairs on the face, the lower one, at the edge of the excavation borne on a tooth-like tubercle. Legs dusky yellow orange. Palpi yellow, tarsus black. Abdomen very dark gray to black above, usually darker below.

Posterior eyes in a straight line, equidistant, separated by three-fourths the diameter. Anterior eyes in a straight line, the median smaller than the lateral, separated by a little less than the radius, and from the lateral by the diameter.

Femur of palpus a little thicker distally, curved inward. Patella viewed from the side straight below, moderately convex above. Tibia rather long, slender at base, widened distally on the lateral side, the dorsal margin smooth, rounded. Cymbium rounded on the back without protuberances, the mesal angle is produced ventrally into a thin, transparent plate. Paracymbium attached obliquely to the cymbium, armed at base with a row of five stiff hairs, the basal arm somewhat constricted, the posterior outer angle square, the outer arm thick and heavy, nearly straight but ending in a broad, thin, flat rounded, light colored lobe, the notch somewhat curved, not very deep on the outer side, outer angle of paracymbium bears several stiff hairs. The tegulum provided with a high, oblique, transversely wrinkled bezel as in the *Erigoneae*. In the untreated bulb the distal part of the median apophysis is not visible, the basal end occupies the mesal concavity of the cymbium; it is thick and rolled over towards the radix, the tip without the tooth present in *Microneta*. The radix very large covering a large part of the ventral surface of the bulb, roughly triangular with the posterior angle rounded and the front margin deeply excavated; the base is not evidently constricted and appears squarely truncate, but the end is really narrow and turned under; the distal end bears on the inner side two short processes, the terminal one is rather broad, thin and transparent in the middle and black on the sides, the end truncate with the margin minutely denticulate and a larger tooth at each angle; the process next to the embolus is a thin transparent plate, rounded at apex and with the ventral margin black and roughened. The embolus attached to the middle of the radix, narrow at base but greatly enlarged distally where it is provided with two nearly parallel flanges, at the base of the lateral flange a minute transverse quadrate black tooth, the mesal flange semitransparent, rounded, the lateral one has a straight black edge; the duct opens in the distal angle of this flange.

Type locality: Readville, Massachusetts.

New York: Ithaca, April 2, 1933, 3 ♂.

Aigola recurvata Emerton.

Fig. 10.

Bathyphantes recurvatus Emerton, Conn. Acad. Sci. Trans. 18 : 218, pl. 2, f. 8. 1913.

Male.—Length, 3 mm. Cephalothorax pale dusky yellow, more grayish

